



DECONTAMINATION

September 8, 2010

Advanced Planning Briefing to Industry

RUDOLF S. OLSZYK
JPM DECONTAMINATION
Joint Program Executive Office for
Chemical and Biological Defense
Rudolf.olszyk@usmc.mil

CHARLES A. BASS, JR., PH.D., P.E.
Senior Science & Technology Manager for
Protection and Hazard Mitigation
Joint Science and Technology Office
for Chemical and Biological Defense
Charles.bass@dtra.mil



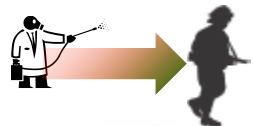
Outline



- **Overview**
- **S&T and Warfighter Needs**
- **Technical Challenges**
- **Acquisition Strategy/ Schedule/ Funding**
- **Upcoming Business Opportunities**
- **Contacts**

Warfighter Needs

Provide Warfighter Flexibility to Tailor Response to the Specific CB Threat



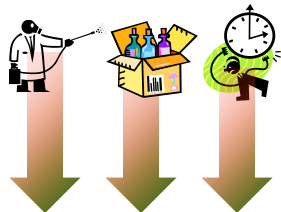
- Increase Hazard Mitigation and Reduce MOPP

- Decrease

- Time/Labor for Both Immediate and Vehicle Decontamination
- Logistics Footprint
- Process Time and Increase Throughput to Reduce Burden on Warfighter

- Reduce

- Cost of Fielded Capabilities
- Decon Process Water Requirements
- Time Lapse Between Detection and Mitigation





Science & Technology (S&T) Overview



- **Objective: Develop Science and Technology that Protects the Warfighter from the Full Range of Chemical and Biological Agents by Supporting Acquisition Programs of Record and Providing the Material Developer with Innovative and Revolutionary Alternatives that Meet the User's Needs**

S&T Overview: Goals & Challenges

- Meeting End-state Goals***



Reduce Hazard



Lower MOPP Level

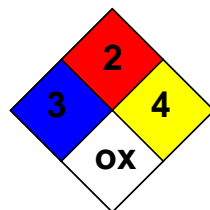


Return Equipment/ Facilities to Normal Service

- Balancing Effectiveness and Suitability***



Material Compatibility



Hazardous Materials



Logistical Footprint

- Planning for Life-cycle Management Early In Development***



Procure



Store



Deteriorate



Dispose

S&T Overview: Joint Doctrine

Immediate

- Individual and Operator
- Skin Decon; Operator Spray-down
- Minimize Casualties; Save Lives
- Limits Spread of Contamination



Operational

- Crew and Unit
- MOPP Gear Exchange; Operator Wash-down
- Limits Contamination Spread and Exposure
- Temporary Relief from MOPP



Thorough

- Specialized Units
- Detailed Personnel, Equipment Decon
- Reduces MOPP Level
- Reconstitutes Combat Power

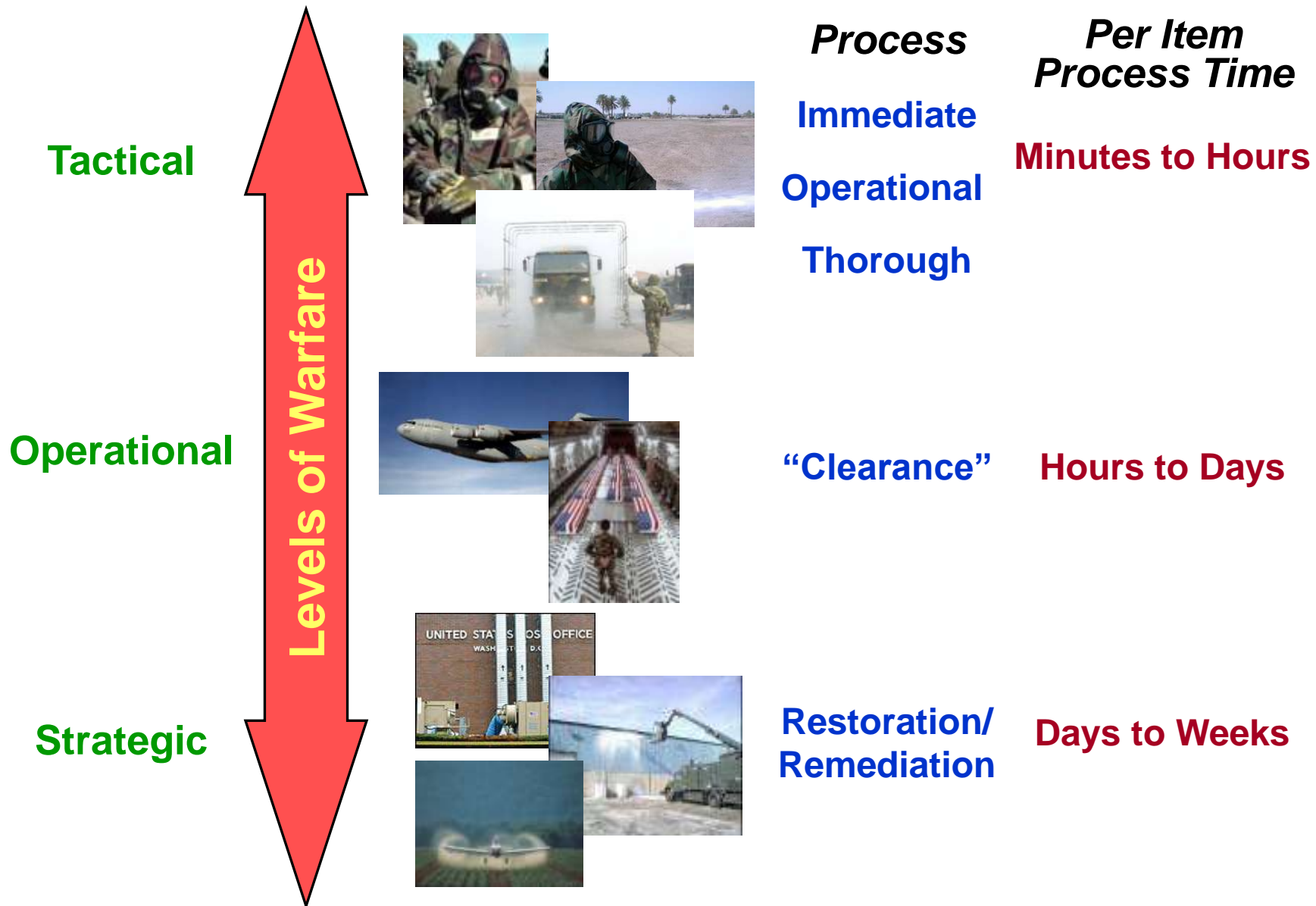
More time needed

Less assets available

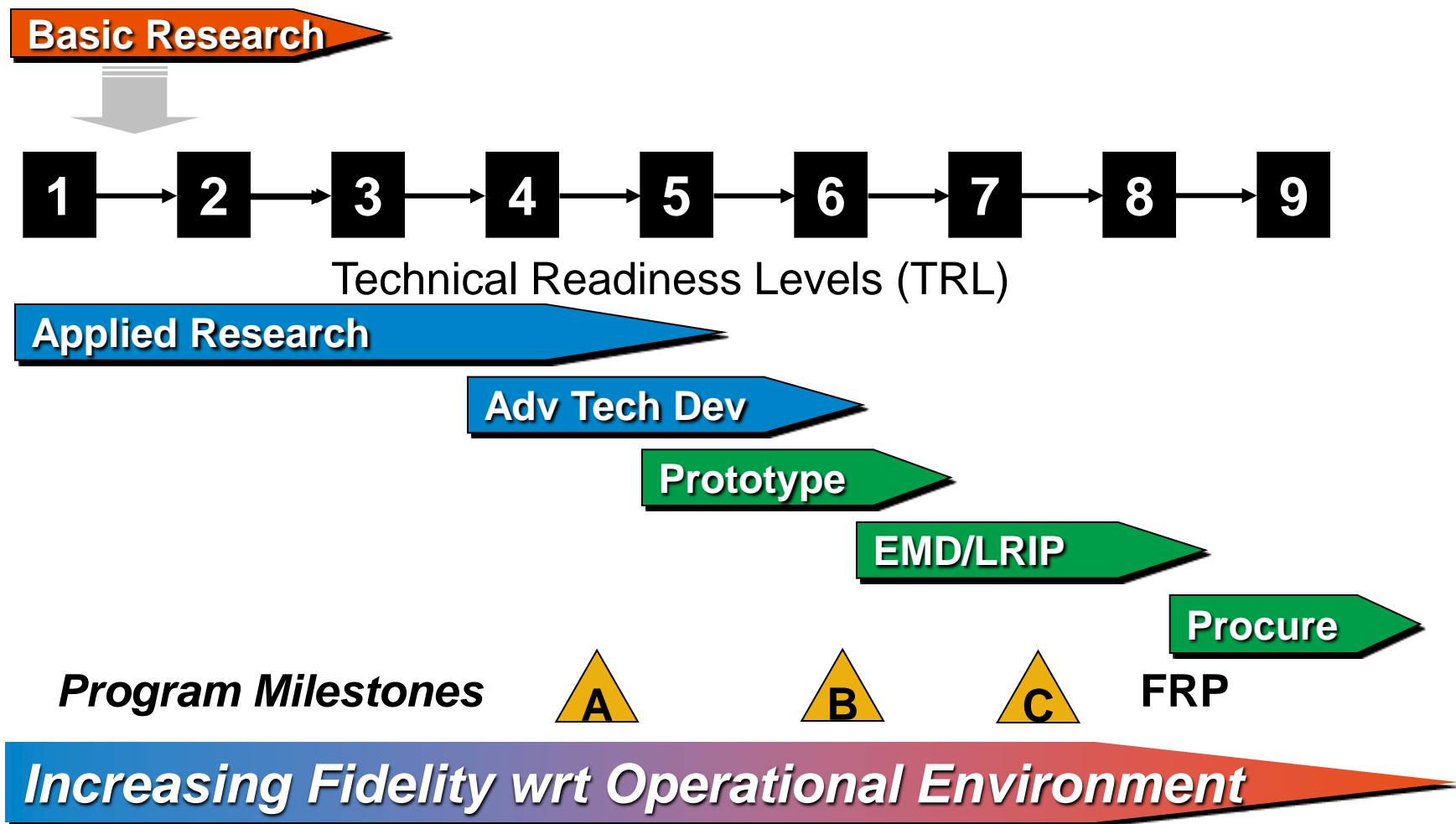
Increase early effectiveness

Increase early effectiveness; decrease required process time later

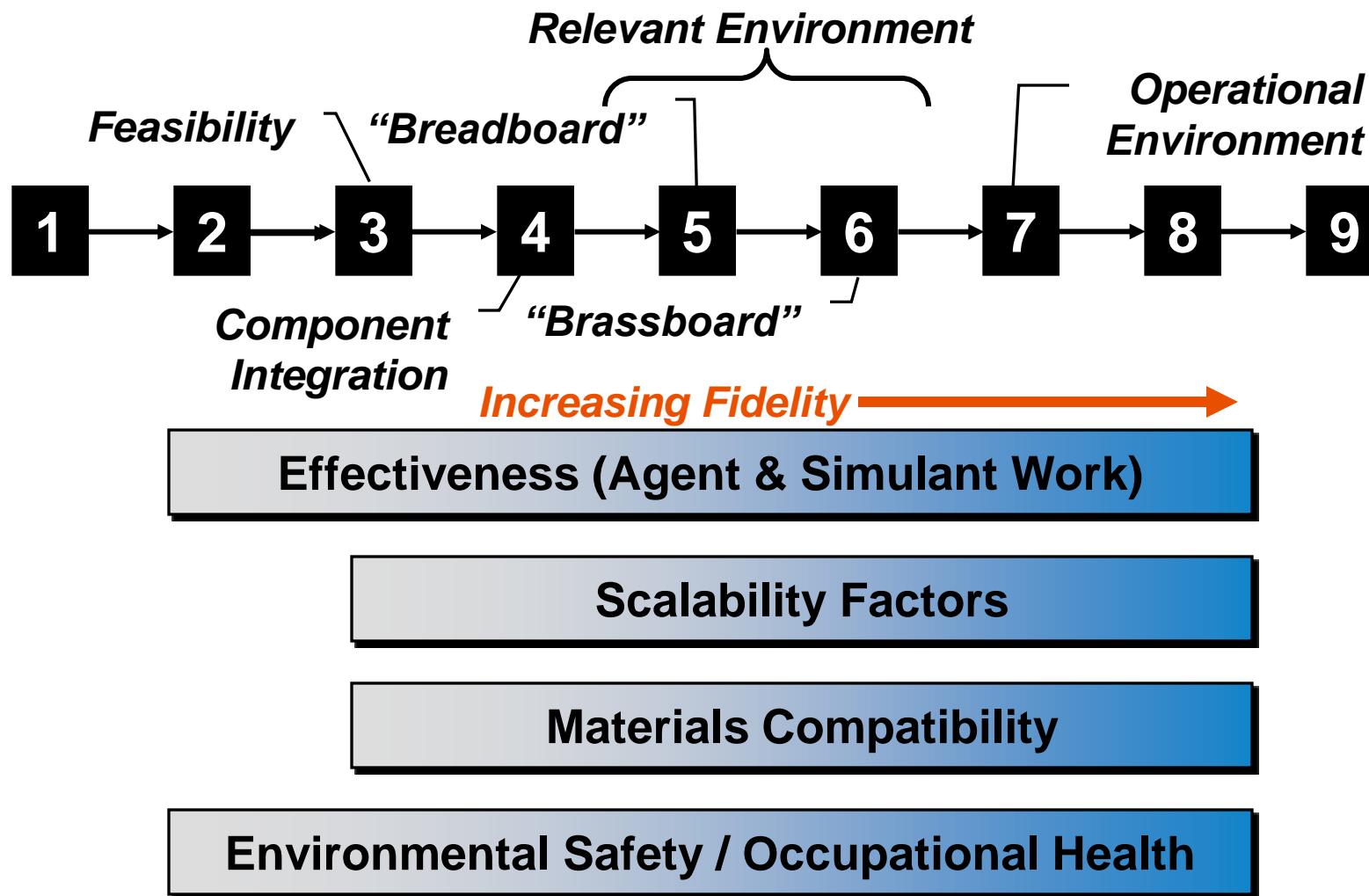
S&T Overview: Process Continuum



S&T Overview: Tech Maturation



S&T Overview: Tech Maturation



S&T Needs and Challenges #1

Challenge #1: General Purpose Formulations

Objective: Effective, Broad-spectrum, Environmentally Safe, Formulations that are Dual-use and Logistically Sustainable

Approaches:



**Shelf-Stable
Enzymes**



**“Green”
Surfactant/
Solvent Systems**



**Oxidative
Formulations**



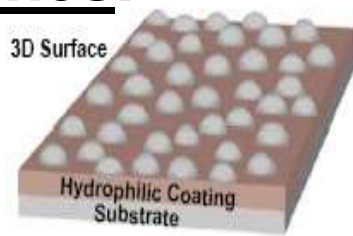
Nano-Materials

S&T Needs and Challenges #2

Challenge #2: Systems Approach to Hazard Mitigation

Objective: Use Combinations of Independent and Complementary Technologies to Achieve Synergistic Results.

Approaches:



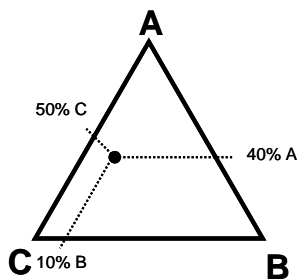
Self-Detoxifying/ Anti-Microbial Surfaces



Directed Energy Approaches



Optimized Application



Point-of-Use Adjustable Formulation



Strippable Coatings



Agent Disclosure

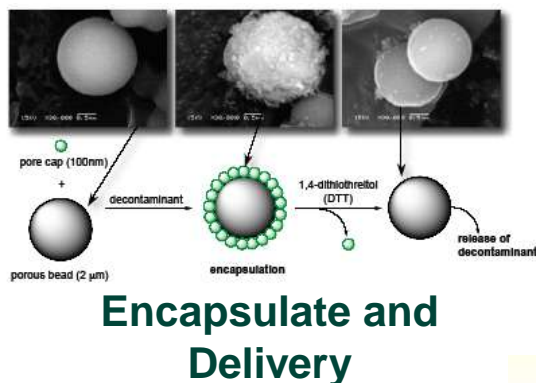


S&T Needs and Challenges #3

Challenge #3: “Smart” Hazard Mitigation

Objective: Develop Technologies that Activate in Specific Response to a Targeted Agent and Signal Activation/Completion – Sense, Respond and Signal

Approaches:



Bioremediation-like Approaches

S&T Needs and Challenges Recap

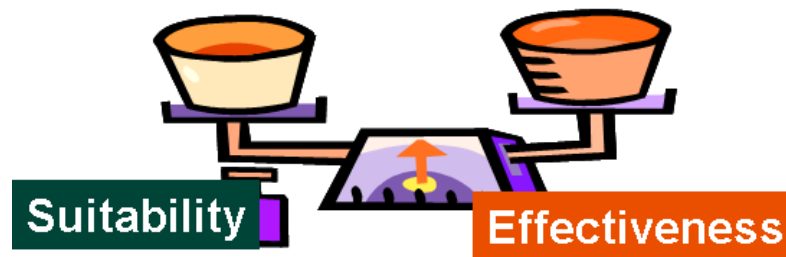
- **Specific S&T Needs:**

- **Decontamination Formulations**

- Broad Range of Effectiveness (Agents and Environment)
 - Dry Storage, Rapid Dissolution
 - No Rinse Formulations
 - Surfactants and Solvents to Remove Surface-bound and Absorbed Agents w/ Effectiveness on Elastomers (Rubber, Silicon, EPDM, Viton, etc.)
 - Dual Use
 - Catalytic and Enzyme

- **Coatings**

- Improved Agent Resistance
 - Permanent Reactive Coatings
 - Fast curing Encapsulating (and Reactive)
 - Strippable
 - Energy Activated





S&T Needs and Challenges Recap



- **Specific S&T Needs (Continued):**
 - Agent Disclosure/ Agent Assurance
 - Optimized Application Methods (e.g. Electro-sprays, Fogs, etc.)
 - “Smart” Hazard Mitigation Approaches
 - Bioremediation-like Approaches
- **Specific S&T Challenges:**
 - How to Formulate Oxidizers that Do Not Pose Issues for Shipping and Storage?
 - How to Develop Reactive, or Catalytic Materials or Enzymes with Sufficient Shelf-life and Pot life?
 - What is the Potential for Dual-use?
 - How to Formulate Effective Reactants/ Solvents that Do Not Harm Military Materials?
 - How to Develop Effective Formulations that Avoid Using Hazardous Substances?
 - Coatings that Meet all Other Military Requirements

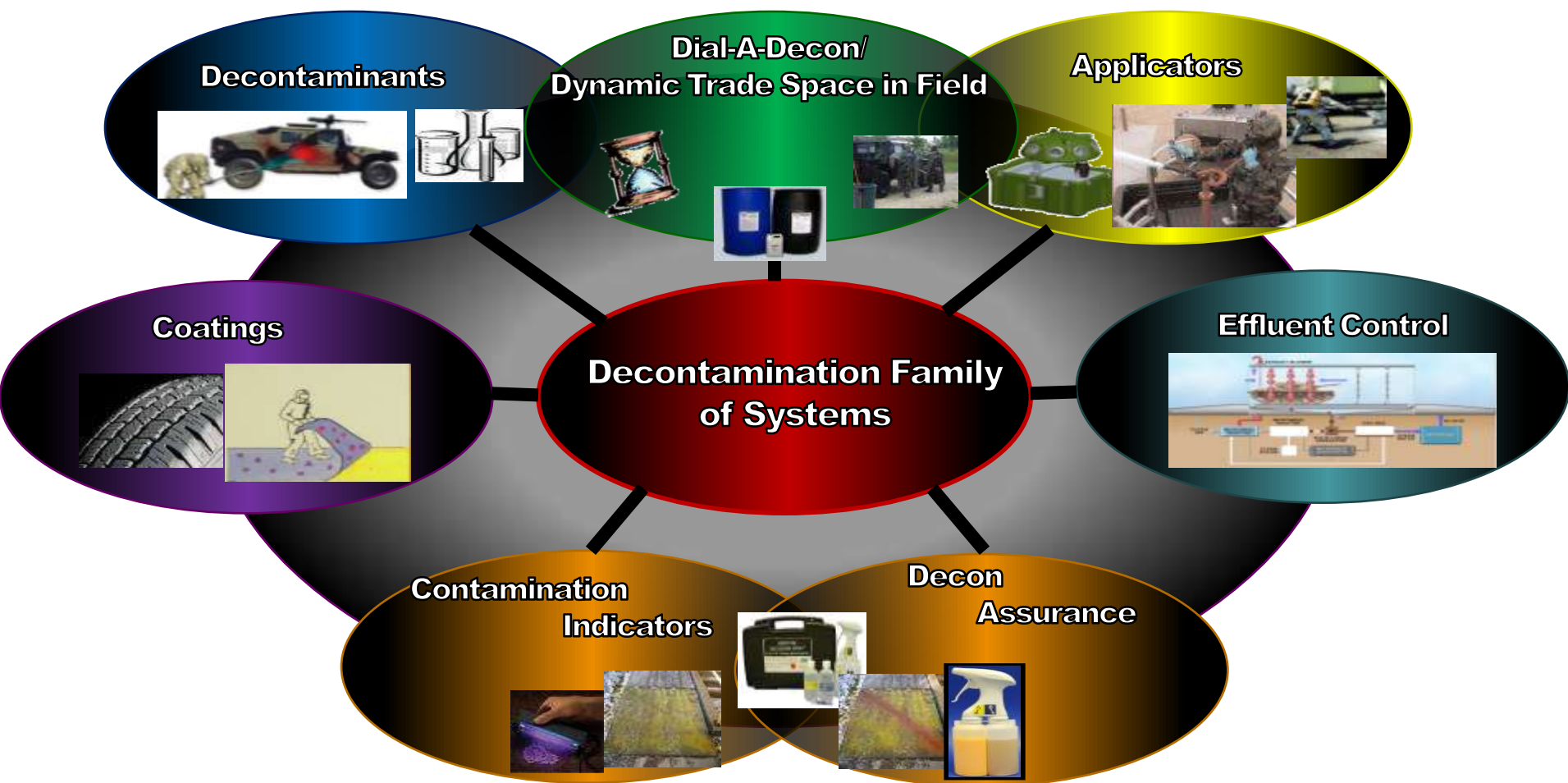


Program Overview



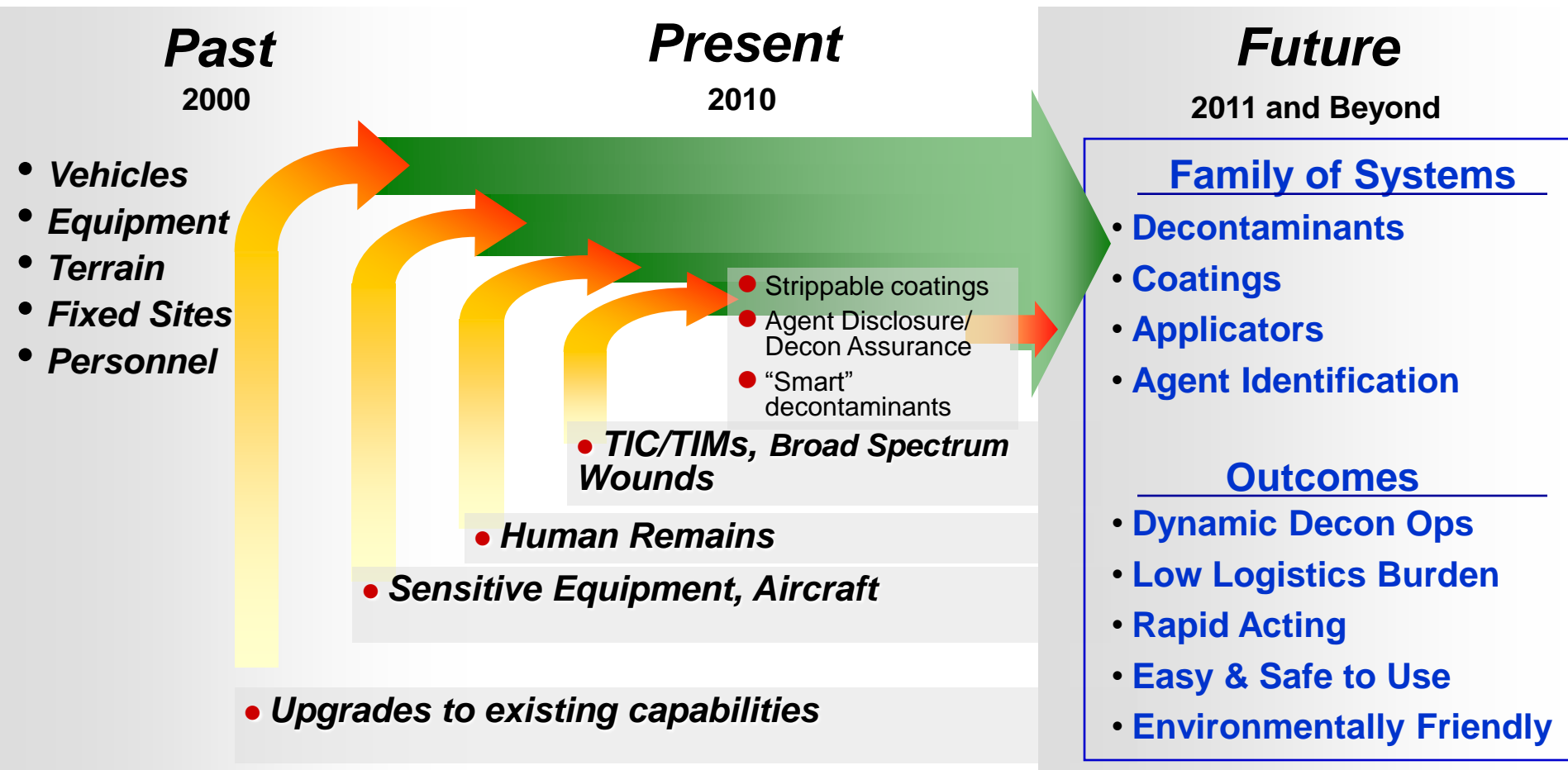
- Support the Warfighter by Providing a System of Decontaminants, Applicators and Other Related Decon Products Specifically Adapted to Work Together to Decontaminate Current and Emerging Threats with **Increasing Efficacy** and Mission Flexibility while Decreasing the Logistics Burden and **Reducing Labor Requirements** on the Operating Forces.

Decontamination Family of Systems



Multiple products: High Density; Low Demand, variable Shelf Life, Special Handling/Storage/Transportation Challenges

Acquisition Strategy



➤ Evolutionary Acquisition Using Incremental Development

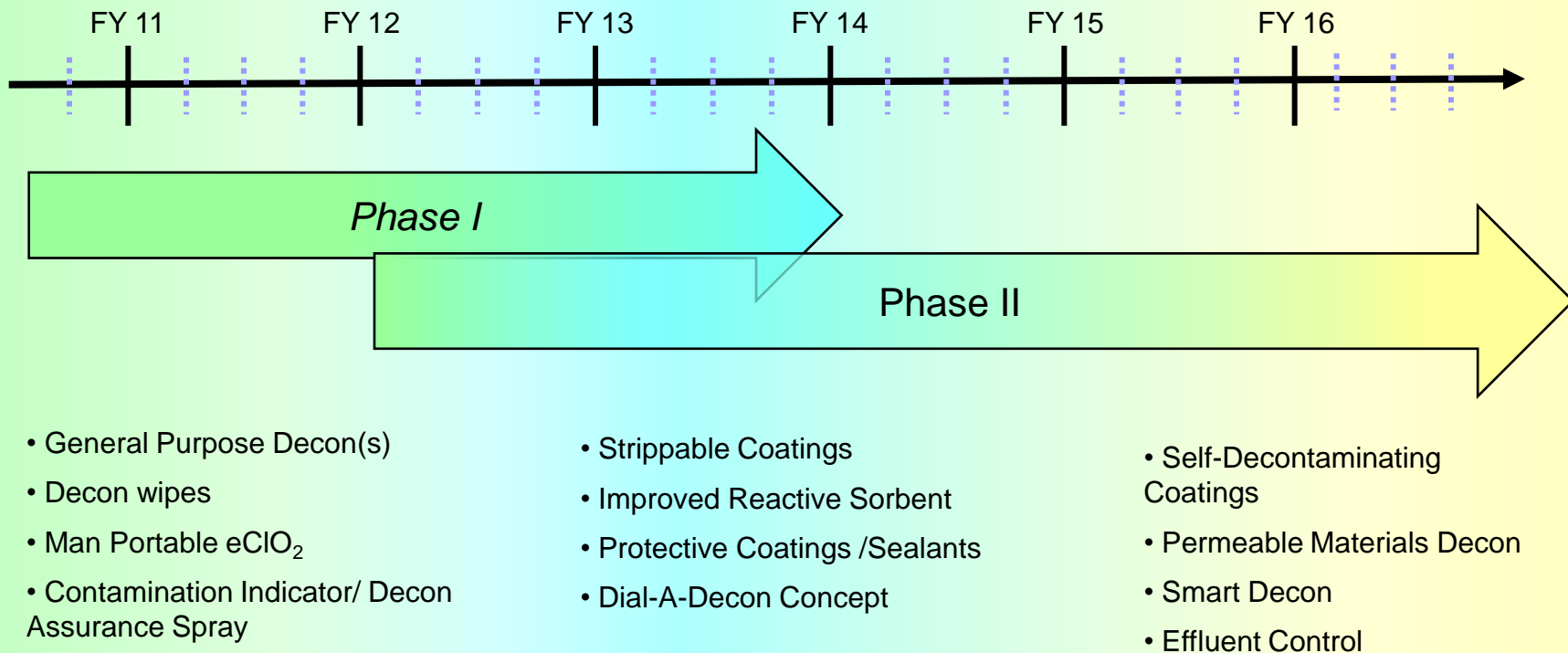
➤ Full and Open Competition

➤ Leverage Commercial-Off-The-Shelf/ Non-developmental Products

➤ Total Life Cycle Systems Management Approach

Decontamination Family of Systems

DFoS Technology Family Members





Program Funding (\$M)

Funding Based on PB11

YEAR	FY11	FY12	FY13	FY14	FY15	TOTAL
RDT&E	\$35.6	\$29.7	\$27.2	\$14.7	\$5.9	<u>\$144.5</u>
Procurement	\$21.6	\$38.0	\$29.4	\$40.9	\$46.2	<u>\$202.5</u>
TOTAL BUDGET	<u>\$57.2</u>	<u>\$67.7</u>	<u>\$56.6</u>	<u>\$55.6</u>	<u>\$52.1</u>	<u>\$347.0</u>



PHM S&T Funding (\$M)



YEAR/ RTDE	FY11	FY12	FY13	FY14	FY15	TOTAL FY11-15
BA2	27.3	22.2	20.2	16.3	16.6	102.6
BA3	2.6	2.7	3.2	8.6	8.8	25.9
TOTAL BUDGET	29.9	24.9	23.4	24.9	25.4	128.5

Total Protection S&T Funds Reflects the FY11 President's Budget Submission and Includes Individual and Collective Protection and Hazard Mitigation



Upcoming Business Opportunities-S&T

<u>Solicitation/Opportunity</u>	<u>Time Period</u>
DTRA Chemical & Biological Technologies Directorate FY12-13 2-yr Broad Agency Announcement (BAA) Extramural (non-US Government) Only, Leading to Contract and Grant Awards Additional Topics may be Added in the Future; Continue to Monitor	FY12-13 Solicitation – <i>Open Now!</i>
Small Business Innovation Research (SBIR) program Opportunity for Small Business Engagement in S&T Program Lead to Contract and Grant Awards • http://www.dodsbir.net/solicitation/default.htm	November 2010
DTRA R&D Innovation Office – Science and Technology New Initiatives BAA (HDTRA1-07-RDINO-BAA)	OPEN
DTRA Fundamental Research to Counter Weapons of Mass Destruction BAA (HDTRA1-09-14-FRCWMD-BAA)	Autumn 2010



Upcoming Business Opportunities-S&T



<u>Solicitation/Opportunity</u>	<u>Time Period</u>
DTRA Chemical & Biological Technologies Directorate FY12-13 2-yr Broad Agency Announcement (BAA) Extramural (non-US Government) Only, Leading to Contract and Grant Awards Additional Topics may be Added in the Future; Continue to Monitor	FY12-13 Solicitation – <i>Open Now!</i>
Small Business Innovation Research (SBIR) program Opportunity for Small Business Engagement in S&T Program Lead to Contract and Grant Awards • http://www.dodsbir.net/solicitation/default.htm	November 2010
DTRA R&D Innovation Office – Science and Technology New Initiatives BAA (HDTRA1-07-RDINO-BAA)	OPEN
DTRA Fundamental Research to Counter Weapons of Mass Destruction BAA (HDTRA1-09-14-FRCWMD-BAA)	Autumn 2010



Upcoming Business Opportunities

OPPORTUNITY	TIME-FRAME
Platform Interior Decon System – Request For Proposal	1QFY11
Contaminated Human Remains Pouch – Request For Quote	2QFY11
Chem/Bio Decontamination Wipes – Request For Proposal	2QFY11
Man Portable (eClO₂) – Request For Proposal	2QFY11
Chem/Bio Decontaminants – Request For Proposal	2QFY11
Agent Indicator/Decon Assurance – Request For Proposal	2QFY11
Coatings – Request For Proposal	3QFY11
Effluent Control System – Request For Proposal	1QFY12
Dial-A-Decon – Request For Proposal	1QFY13
Automated Decon System – Request For Proposal	4QFY13



S&T Points of Contact



- **JSTO CBD Senior Science and Technology Manager for Protection and Hazard Mitigation**
Charles Bass, Ph.D., P.E.
(703) 767-3371
charles.bass@dtra.mil
- **Hazard Mitigation Science and Technology Manager**
Glenn Lawson, Ph.D.
(703) 767-3311
glenn.lawson@dtra.mil



Program Points of Contact



- **Mr. Rudolf S. Olszyk, JPM Decontamination**
 - (703) 617-2443
 - rudolf.olszyk@usmc.mil
- **Mr. Victor Murphy, Director of Programs/DFoS**
 - (703) 617-2413
 - victor.murphy@usmc.mil
- **Ms. Stacey Shepherd, Sensitive Equipment Decon Program Manager**
 - (703) 617-2465
 - stacey.shepherd@usmc.mil
- **Mr. Don Cline, Personnel Decon Program Manager**
 - (540) 657-5064
 - don.d.cline@us.army.mil



Backup Slides





Program Funding (\$M)

Funding based on POM FY 12-16

YEAR	FY11	FY12	FY13	FY14	FY15	FY16	TOTAL
RDT&E	\$35.5	\$43.2	\$39.9	\$33.9	\$29.8	\$25.0	<u>\$239.4</u>
Procurement	\$21.6	\$6.5	\$0.0	\$5.1	\$13.7	\$29.0	<u>\$102.3</u>
TOTAL BUDGET	<u>\$57.1</u>	<u>\$49.7</u>	<u>\$39.9</u>	<u>\$39.0</u>	<u>\$43.5</u>	<u>\$54.0</u>	<u>\$341.7</u>